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# Fax

**To:** USPTO – Ms. Lorenda Hood,  
Patent Appeal Center Specialist

**From:** Kevin Alan Wolff

**Fax:** 571-273-8300

**Pages:** 10 (includes cover)

**Phone:** 571-272-3600

**Date:** 9/2/2008

**Re:** Notification of Non-Compliant Appeal Brief **CC:**  
for Application No.: 10/657,189

☒ **Urgent**    ☐ **For Review**    ☐ **Please Comment**    ☐ **Please Reply**    ☐ **Please Recycle**

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• **Comments:**

Please find enclosed the following documents to be filed for patent case 10/657,189:

1. Filing Record
2. Transmittal Form
3. Cover Letter
4. 4 Replacement Pages for Appeal Brief filed July 28, 2008
5. Copy of Notification of Non-Compliant Appeal Brief

Thank you for your attention to this matter.

Kevin Wolff

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**WOLFF LAW OFFICES, PLLC - FILING RECORD**

Attorney Docket No.: **Legare - PAUS0003**  
Today's Date: **September 2, 2008**  
Attorney: **Kevin A. Wolff**  
Fee Transmitted Herewith: **\$0**  
Serial No.: **10/657,189**  
Filing Date: **September 9, 2003**  
Title: **CONTROL METHODS FOR IMPROVED CATALYTIC  
CONVERTER EFFICIENCY AND DIAGNOSIS**  
Inventors: **Joseph E. Legare**

**THE MAILING/TRANSMISSION HEREOF ACKNOWLEDGES RECEIPT OF:**

**DOCUMENTS BEING FILED:**

- (1) Transmittal Form
- (2) Cover Letter
- (3) 4 Replacement Pages for Appeal Brief filed July 28, 2008
- (4) Copy of Notification of Non-Compliant Appeal Brief

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PTO/SB/21 (09-04)

Approved for use through 07/31/2008. OMB 0651-0031

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	10/657,189	
	Filing Date	September 9, 2008	
	First Named Inventor	Joseph E. Legare	
	Art Unit	3748	
	Examiner Name	Diem Tran	
Total Number of Pages in This Submission	9	Attorney Docket Number	Legare-PAUS0003

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement  <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input checked="" type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below): - Filing Record - Letter Regarding Response to Notification of Non-Compliant Appeal Brief - 4 Replacement Pages - Page 3 - 6 - Copy of Notification
Remarks		

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Wolff Law Offices, PLLC, P.O. Box 9855, Chapel Hill, NC 27515-9855 Ph. 919-933-9684		
Signature	/Kevin Alan Wolff/ <i>Kevin Wolff</i>		
Printed name	Kevin Alan Wolff		
Date	9/2/2008	Reg. No.	42,233

## CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	/Kevin Alan Wolff/ <i>Kevin Wolff</i>		
Typed or printed name	Kevin Alan Wolff	Date	9/2/2008

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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September 2, 2008  
Via Facsimile

Lorenda Hood  
Patent Appeal Center Specialist  
Commissioner of Patents  
USPTO  
P.O. Box 1450  
Alexandria, VA 22313-1450

Re: Response to Notification of Non-Compliant Appeal Brief dated August 14, 2008  
Patent Appl. Serial No. 10/657,189

Dear Ms. Hood:

It was a pleasure talking with you today about the Notification of Non-Compliant Appeal Brief that was mailed by you on August 14, 2008 (copy attached) for U.S. Patent Appl. Serial No. 10/657,189. Thank you for your explanation and indication of the minor changes needed to the Summary of Claimed Subject Matter section (even though it was not noted on the February, 2008 Notification of Non-Compliant Appeal Brief). I believe the changes may be helpful. Also, thank you for indicating again that the Grouping of Claims Section was not needed and could be deleted. I have now made the corrections regarding these two sections per our discussion.

Thus, per our discussion, I submit herewith amended pages 3, 4, 5 and 6 to replace pages 3, 4, 5 and 6 (4 pages) originally filed with the July 28, 2008 Appeal Brief (and Reinstatement of Appeal), to address the issues identified in the Notification of Non-Compliant Appeal Brief dated August 14, 2008. I believe that these changes now result in the Appeal Brief being compliant.

Thanks again for suggesting the changes.

Sincerely,



Kevin Alan Wolff  
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Wolff Law Offices, PLLC  
Supplemental Appeal Brief

Attorney Docket No. Legare-PAUS0003  
Appl. Ser. No. 10/657,189

6. Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Maus et al. (U.S. Patent 5,610,844), in view of Pelters et al. (U.S. Patent 5,435,172), and further in view of Fujimoto et al. (U.S. Patent 5,591,905).
7. Claim 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Maus et al. (U.S. Patent 5,610,844), in view of Pelters et al. (U.S. Patent 5,435,172), and further in view of Yamashita et al. (U.S. Patent 5,727,383).
8. Claims 32 and 33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Maus et al. (U.S. Patent 5,610,844), in view of Pelters et al. (U.S. Patent 5,435,172), and further in view of Yamashita et al. (U.S. Patent 5,727,383).

As a result, claims 1-51 are pending in the application and the rejections of claims 1-9, 11-16, 18-20, 24-33, 36, 38-40, 43-46, 50 and 51 are presently being appealed.

#### **STATUS OF AMENDMENTS**

Following the Final Office Action dated May 17, 2007, Appellant submitted a Response and Amendment on July 17, 2007 amending claims 1, 20, 24, 28, 29, 43, 50, to more clearly claim the invention and correct minor typographical errors noted by the Applicant. The Examiner issued an Advisory Action mail dated August 9, 2007 that refused to enter the Amendments filed on July 17, 2007 because they raise new issues that would require further consideration (to which the Applicant respectfully disagrees, but believes regardless all claims as presently pending in the form submitted herein are patentable). Therefore, the claims on Appeal are as filed on February 20, 2007 and are shown in the Appendix attached hereto.

#### **SUMMARY OF CLAIMED SUBJECT MATTER**

Concerning independent claims 1, 20, 24, 28, 29, 43, 50, and 51, each of these independent claims and their dependent claims may be read on nearly all of the figures (FIGS. 1-8B), all of their respective reference characters, and the paragraphs of the specification in their entirety (e.g., the Detailed Description section at page 23, paragraph 32, through, page 103, paragraph 159) but are mostly directed to Figures 4A – 8B and the paragraphs in the

Wolff Law Offices, PLLC  
Supplemental Appeal Brief

Attorney Docket No. Legare-PAUS0003  
Appl. Ser. No. 10/657,189

specification related thereto (e.g., the Detailed Description section at page 52, paragraph 80, through, page 103, paragraph 159). However, it should be noted that various elements and limitations of the independent claims also find support in the Summary section and the claims themselves.

The present claimed invention and patent application are primarily directed to two basic objectives; (1) to more quickly heat the catalyst after a cold start (a catalyst in this case may be, for example, a material (e.g. metal balls) housed in an automobile catalytic convert so that the catalyst is heated up quicker and help to more fully burn any unused fuel that is output by an engines cylinders, so as to reduce air pollution) of an internal combustion engine by more quickly heating the catalyst up to its activation and conversion temperature (used in, for example an automobile) so as to better diagnose the condition of the catalyst or to improve the initial pollution control performance of the system (e.g., to reduce air pollution emissions from automobiles) (e.g., independent claims 1, 20, and 50) and (2) to more easily and cost effectively diagnose the continued acceptable performance of the catalyst so as to, e.g., continue to reduce air pollution emissions from automobiles by quickly heating a catalyst (e.g., independent claims 29, 43, and 51), both, or a subset of both. As such, one approach of the invention provides various techniques for increasing the speed of heating a catalyst from an initial cold start condition (e.g., immediately after the automobile is started after sitting with the engine off for a long period of time) so that the better catalyst diagnosis may be performed and/or so that the catalyst is converting various gases more quickly. Another approach of the invention provides various techniques for easily, accurately, and cost effectively diagnosing the catalysts conversion capability during continuous engine operation so as to identify when the catalyst capability has degraded below a desired level of performance and needs to be changed. In various embodiments of the invention, the methods for accomplishing these objectives include the use of controlling the amount of gasoline injected into selected individual engine cylinders fuel (e.g., there are 4, 6, 8 or 12 engine cylinders in most automobiles) at particular times by individually controlling each of the fuel injectors connected to each of the individual engine cylinders.

With respect to catalyst diagnosis, one feature of the various embodiments of the Applicant's invention is providing a method for controlling individual engine cylinder's fuel injection quantities to affect an engine's exhaust gases' concentrations of gases, such as CO or oxygen, under steady state conditions during a controlled time period so as to cause catalyst

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Supplemental Appeal Brief

Attorney Docket No. Legare-PAUS0003  
Appl. Ser. No. 10/657,189

heating. This feature can be accomplished by using the engine control unit (7) to control each fuel injector's (15) flow rate of fuel to selected individual or groupings of cylinders in order to cycle the selected individual cylinders' air-fuel conditions between predetermined rich and lean states. Figures 2 and 6 provide examples of selected individual engine cylinder control and the effect of cycling the fuel rate to selected groups of engine fuel injectors.

Another feature of the various embodiments of the Applicant's invention is providing a method for temporarily controlling defined changes of individual exhaust gases' concentrations to produce consistent catalyst temperature changes and allow diagnosis of catalytic converter malfunctions. Once again, the method of causing a change in steady state exhaust gas conditions is enabling of rich-lean cyclic fuel control that raises the levels of gases, such as CO and oxygen, at the catalyst surfaces. Engine control unit (7) may then determine whether the target catalytic converter (10) or (22) is malfunctioning by comparing changes between the first and second temperature characteristics as well as the first and second derivatives which comprise catalyst temperature profiles which may be compared to reference catalytic converters measured during similar steady state conditions representative of the two states.

With respect to cold start quick heating of the catalyst, another feature of the various embodiments of the Applicant's invention is to increase the rate of catalytic heating, particularly during open loop fuel control (although both during open and closed loop fuel control are possible as disclosed), at the earliest time when a catalyst's temperature is sufficient to allow sustainable exothermic reactions at portions of its active surfaces. This may also be used in determining the efficiency of the catalyst.

#### **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

1. Whether claims 1, 2, 7-9, 11-16, 18, 20, 29-31, 36, 38-40 and 43-46 are unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844) in view of Pelters et al. (U.S. Patent 5,435,172).
2. Whether claims 24-26 and 28 are unpatentable under 35 U.S.C. § 103(a) over Fujimoto et al. (U.S. Patent 5,591,905) in view of Pelters et al. (U.S. Patent 5,435,172).

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Supplemental Appeal Brief

Attorney Docket No. Legare-PAUS0003  
Appl. Ser. No. 10/657,189

3. Whether claims 3-6 are unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844) in view of Pelters et al. (U.S. Patent 5,435,172) and Holl (U.S. Patent 3,785,151).
4. Whether claim 19 is unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844) in view of Pelters et al. (U.S. Patent 5,435,172) and Fujimoto et al. (U.S. Patent 5,591,905).
5. Whether claim 27 is unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844) in view of Pelters et al. (U.S. Patent 5,435,172) and Yamashita et al. (U.S. Patent 5,727,383).
6. Whether claims 32 and 33 are unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844), in view of Pelters et al. (U.S. Patent 5,435,172), and further in view of Yamashita et al. (U.S. Patent 5,727,383).
7. Whether claim 50 is anticipated under 35 U.S.C. § 102(b) by Yamashita et al. (U.S. Patent 5,727,383).
8. Whether claim 51 is anticipated under 35 U.S.C. § 102(b) by Pelters et al. (U.S. Patent 5,435,172).

### **ARGUMENT**

As a general matter, none of the cited and applied references presented by the Examiner can anticipate or render obvious any of the pending claims because they fail to disclose, teach, or suggest each and every limitation of the claims. None of the cited and applied references disclose, teach or suggest a method or system that can and does control conditions of "selected individual engine cylinders." Nor does the Examiner provide any reasoning for modifying the disclosure of the references to do so. In particular, none of the cited and references have the hardware or software capable of controlling the conditions (e.g., amount of fuel or gas concentration) of "selected individual engine cylinders" as stated in the limitations of all of independent claims 1, 20, 24, 28, 29, and 43 (claims 50 and 51 will be discussed below). There are three primary inputs that can be controlled in an engine to achieve controlling the conditions of "selected engine cylinders" exhaust gases; controlling the amount of engine inlet air, controlling the amount of fuel, or controlling the timing or extent of spark to ignite the air and





## UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,189	09/09/2003	Joseph E. Legare	Legare-PAUS0003	1625
58937	7590	08/14/2008	EXAMINER	
WOLFF LAW OFFICE, PLLC P.O. BOX 9855 CHAPEL HILL, NC 27515-9855			ART UNIT	PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Notification of Non-Compliant Appeal Brief (37 CFR 41.37)</b>	Application No. 10/657,189	Applicant(s) LEGARE, JOSEPH E.	
	Examiner TRAN, DIEM	Art Unit 3748	

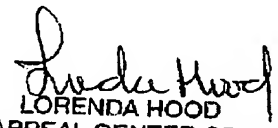
**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

The Appeal Brief filed on July 28, 2008 is defective for failure to comply with one or more provisions of 37 CFR 41.37.

To avoid dismissal of the appeal, applicant must file an amended brief or other appropriate correction (see MPEP 1205.03) within **ONE MONTH or THIRTY DAYS** from the mailing date of this Notification, whichever is longer.  
**EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136.**

1. ☒ The brief does not contain the items required under 37 CFR 41.37(c), or the items are not under the proper heading or in the proper order.
2. ☐ The brief does not contain a statement of the status of all claims, (e.g., rejected, allowed, withdrawn, objected to, canceled), or does not identify the appealed claims (37 CFR 41.37(c)(1)(iii)).
3. ☐ At least one amendment has been filed subsequent to the final rejection, and the brief does not contain a statement of the status of each such amendment (37 CFR 41.37(c)(1)(iv)).
4. ☒ (a) The brief does not contain a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings, if any, by reference characters; and/or (b) the brief fails to: (1) identify, for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function under 35 U.S.C. 112, sixth paragraph, and/or (2) set forth the structure, material, or acts described in the specification as corresponding to each claimed function with reference to the specification by page and line number, and to the drawings, if any, by reference characters (37 CFR 41.37(c)(1)(v)).
5. ☐ The brief does not contain a concise statement of each ground of rejection presented for review (37 CFR 41.37(c)(1)(vi)).
6. ☐ The brief does not present an argument under a separate heading for each ground of rejection on appeal (37 CFR 41.37(c)(1)(vii)).
7. ☐ The brief does not contain a correct copy of the appealed claims as an appendix thereto (37 CFR 41.37(c)(1)(viii)).
8. ☐ The brief does not contain copies of the evidence submitted under 37 CFR 1.130, 1.131, or 1.132 or of any other evidence entered by the examiner and relied upon by appellant in the appeal, along with a statement setting forth where in the record that evidence was entered by the examiner, as an appendix thereto (37 CFR 41.37(c)(1)(ix)).
9. ☐ The brief does not contain copies of the decisions rendered by a court or the Board in the proceeding identified in the Related Appeals and Interferences section of the brief as an appendix thereto (37 CFR 41.37(c)(1)(x)).
10. ☐ Other (including any explanation in support of the above items):

Item 1. The "Grouping of the Claims" heading should be omitted from the Appeal Brief.  
Item 4. The claimed invention fails to argue each independent claim separately, which shall refer to the specification by page and line number and to the drawings, if any.

  
 LOREND A HOOD  
 PATENT APPEAL CENTER SPECIALIST